DOCUMENT RESUME

ED 237 931 CS 007 371

AUTHOR Baumann, James F.
TITLE Effect of a Direct Instruction Paradigm for Teaching Sixth Grade Students to Comprehend Main Ideas.
PUB DATE Dec 83
NOTE 12p.; Paper presented at the Annual Meeting of the National Reading Conference (33rd, Austin, TX, December 1983).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Basal Reading; Comparative Analysis; *Directed Reading Activity; Grade 6; Intermediate Grades; *Reading Achievement; *Reading Comprehension; *Reading Instruction; *Reading Research; Reading Strategies; Teaching Methods; Vocabulary Development
IDENTIFIERS *Direct Instruction; *Main Idea

ABSTRACT

Sixty-six grade six students were subjects in a study to evaluate the effectiveness of a direct instruction paradigm for teaching children the reading comprehension skill of main idea identification. Both experimental groups (strategy and basal) and the control group received eight lessons of 30 minutes each. All instruction occurred over a two-week period, with posttesting immediately following instruction. The strategy group received intensive, direct instruction in main ideas that consisted of five steps: introduction, example, direct instruction, teacher-directed application, and independent practice. To compare the performance of students, basal group members were administered all the lessons on main ideas and supporting details from a current basal reader series. Students in the control group received an equivalent amount of instructional time on unrelated vocabulary development exercises. Results indicated that (1) the strategy group outperformed both the basal and the control groups in ability to recognize explicit and implicit paragraph main ideas, recognize details that support main ideas, recognize explicit and implicit passage main ideas, and compose paragraph and passage main ideas for a main idea outline; (2) the basal group outperformed the control group in ability to recognize explicit paragraph main ideas; (3) treatment groups did not differ in ability to free recall main ideas or in total free recall; (4) more capable readers consistently outperformed less capable readers on all dependent variables; and (5) there were no interactions between treatments and achievement levels. (HOD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED237931

Effect of a Direct Instruction Paradigm for Teaching Sixth Grade Students to Comprehend Main Ideas

James F. Baumann

Purdue University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

James F. Baumann

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Paper presented at the 33rd Annual Meeting of the National Reading Conference

Austin, Texas, December 1983

CS 007 371

Effect of a Direct Instruction Paradigm for Teaching Sixth Grade Students to Comprehend Main Ideas

James F. Baumann, Purdue University

Several studies have indicated that adult, fluent readers are capable of comprehending the gist or main ideas of prose passages (e.g., Duchastel, 1979; Johnson, 1970; Kintsch & Keenan, 1973; Kintsch, Kozminsky, Streby, McKoon, & Keenan, 1975; Meyer, 1975; Meyer & McConkie, 1973). Research with young or developing readers, however, suggests that children do not have great inherent skill at main idea comprehension (e.g., Baumann, 1981, 1983a; Dunn, Matthews, & Bieger, 1979; Otto, Barrett, & Koenke, 1968; Taylor, 1980; Tierney, Bridge, & Cera, 1978-79; Winograd, in press; also see a review by Baumann, 1982). Recent research on teacher behaviors linked to effective reading instruction (e.g., Berliner, 1981; Berliner & Rosenshine, 1977; Duffy, 1981, 1982; Fisher, Berliner, Filby, Marliave, Cahen, & Dishaw, 1980; Good & Brophy, 1978; Rosenshine & Berliner, 1978) along with results of several comprehension instructional studies (e.g., Hansen, 1981; Hansen & Pearson, in press; Patching, Kameenui, Carnine, Gersten, & Colvin, 1983; Raphael & Pearson, 1982; Tharp, 1982; see reviews by Pearson, 1982, 1984; Pearson & Gallagher, 1983) reveal that when children are provided intensive, direct instruction in specific reading comprehension skills, they acquire these skills and apply them in new reading contexts. It was the purpose of this study, therefore, to evaluate the effectiveness of a direct instruction paradigm (Baumann, 1983b) for teaching children the reading comprehension skill of main idea.

Method

Subjects and Design

Sixty-six, sixth grade students from an elementary school in a rural midwestern community participated in the study. A 3 X 3 posttest-only design was employed in which treatment (Strategy, Basal, Control) was crossed with achievement (High, Middle, Low). Students were randomly assigned to treatments on the basis of scores from the reading comprehension subtest of the Metropolitan Achievement Test. The 21 highest scoring students were randomly assigned, 7 each, to the High group; the students achieving the middle 24 scores were randomly assigned, 8 each, to the Middle group; the lowest achieving 21 students were randomly assigned, 7 each, to the Low group. Percentiles corresponding to mean scaled scores for each group were High = 92, Middle = 66, and Low = 38.

Instructional Procedure

Both experimental groups (Strategy, Basal) and the Control group received eight lessons of 30 minutes each, with all instruction being administered by the experimenter. All instruction occurred over a two-week period, with posttesting immediately following instruction.

Strategy group. The Strategy group received intensive, direct instruction in main ideas according to an instructional strategy developed by the

experimenter (Baumann, 1983b), which consisted of five steps: (1) Introduction, (2) Example, (3) Direct Instruction, (4) Teacher-Directed Application, and (5) Independent Practice. Table 1 presents a brief description of each step in the direct instruction paradigm. The content of the eight Strategy lessons consisted of teaching children to comprehend explicit and implicit main ideas in paragraphs, to comprehend explicit and implicit main ideas in short passages (3-5 paragraphs in length), and to construct main idea outlines for short passages (3-5 paragraphs in length). The instructional strategy not only embodied many of the principles of "direct instruction" (Berliner, 1981; Duffy & Roehler, 1982) but employed the use of many heuristics and required students to summarize text (Brown & Day, 1983; Tierney & Bridge, 1979; Winograd, in press) and compose--as opposed to simply identify--main ideas (Doctrow, Wittrock, & Marks, 1978; Taylor & Berkowitz, 1980).

Basal group. To compare the performance of students in the Strategy group to children who receive more traditional instruction in main idea comprehension, Basal group members were administered all the lessons on main ideas and supporting details from a current, popular basal reader series (Ride the Sunrise, Level 12, of the Ginn Reading Program, Clymer & Venezky, 1982).

Control group. Students in the Control group received an equivalent amount of instructional time on unrelated vocabulary development exercises.

Dependent Measures and Data Analyses

Five separate tests to assess main idea and detail comprehension were prepared by the experimenter: (1) a Main Ideas in Paragraphs test which consisted of multiple choice items that assessed explicit and implicit paragraph main idea comprehension; (2) a Details that Support Main Ideas test that assessed how well students could associate details with main ideas; (3) a Main Ideas in Paragraphs test that consisted of multiple choice items that assessed explicit and implicit passage main idea comprehension, (4) a Main Idea Outline test that required students to construct simple two-level outlines for short passages (main idea of the entire passage subordinated by main ideas in paragraphs), and (5) a Free Recall test which was scored for main ideas present (passage and paragraph) and total free recall.

Nine separate dependent measures were obtained from these tests and were classified as either "near" transfer measures or "far" transfer measures. Near transfer measures consisted of (1) number of explicit paragraph main ideas correct, (2) number of implicit paragraph main ideas correct, (3) number of details correct, (4) number of explicit passage main ideas correct, and (5) number of implicit passage main ideas correct. Far transfer measures consisted of (1) number of paragraph main ideas correct from the outline test, (2) number of passage main ideas correct from the outline test, (3) number of main ideas free recalled, and (4) total free recall. Separate 3 X 3 MANOVAs were conducted for each set of dependent variables, and univariate tests were conducted for significant overall MANOVAs.

Results

Near Transfer Measures

Table 2 presents mean scores and standard deviations for students' performance (by achievement level) on the near transfer measures. MANOVA

results revealed a significant main effect for treatment [F (10, 106) = 6.797, $p < .001$] and for achievement level [F (10, 106) = 5.283, $p < .001$]. The treatment by achievement level interaction did not attain statistical significance [F (20, 177) = 0.658, $p < .863$]. Table 3 presents univariate F test results for the treatment factor on near transfer measures. As can be seen, each individual univariate test attained statistical significance, indicating that each dependent variable contributed to the overall significant MANOVA for treatment. Post hoc tests indicated that the Strategy group outperformed both the Basal and Control groups for each dependent variable; in addition, the Basal group's performance exceeded that of the Control group on the explicit paragraph main ideas subtest. Although the primary purpose of the study was to evaluate the effect of main idea instructional method (treatment), it should be noted that the overall significant MANOVA for achievement level was supported by significant univariate F tests ($p = .029$ or less) for each of the individual dependent variables, indicating a strong achievement level effect for each near transfer measure.

Far Transfer Measures

Table 4 presents mean scores and standard deviations for students' performance (by achievement level) on the far transfer measures. MANOVA results revealed a significant main effect for treatment [F (8, 108) = 2.919, $p < .005$] and for achievement levels [F (8, 108) = 4.013, $p < .001$]. The treatment by achievement level interaction did not attain statistical significance [F (16, 166) = 1.085, $p < .373$]. Table 5 presents univariate F test results and post hoc results for the treatment factor on far transfer measures. As can be seen, the two outline test measures were the only far transfer measures that contributed to the overall significant MANOVA for treatment, as neither free recall measure attained statistical significance. Post hoc tests for the outline paragraph main ideas and outline passage main ideas revealed that the Strategy group outperformed both the Basal and Control groups for each of these measures. The overall significant MANOVA for achievement level was supported by significant univariate F tests ($p = .01$ or less) for each of the four constituent variables, again indicating a strong achievement level effect for each far transfer measure.

Discussion

The results of the study very strongly suggest that the implementation of a direct instruction paradigm for teaching the reading comprehension skill of main idea is superior to basal reader instruction in main ideas and to meaning vocabulary development activities. Results can be summarized in the following fashion:

1. The Strategy group outperformed both the Basal and Control groups in ability to recognize explicit and implicit paragraph main ideas, recognize details that support main ideas, recognize explicit and implicit passage main ideas, and compose paragraph and passage main ideas for a main idea outline.

2. The Basal group outperformed the Control group in ability to recognize explicit paragraph main ideas.

3. Treatment groups did not differ in ability to free recall main ideas nor in total free recall.

4. A strong achievement level effect was noted, indicating more capable readers consistently outperformed less capable readers on all dependent variables.

5. No interactions between treatments and achievement levels were detected.

In conclusion, the results of the present study are consistent with generalized research on the power of "direct instruction" (e.g., Berliner, 1981; Brophy, 1979; Duffy, 1981, 1983; Fisher et al., 1980) and the results of prior successful instructional research on comprehension (e.g., Hansen, 1981; Hansen & Pearson, 1982; Patching et al., 1983; Raphael & Pearson, 1982; Tharp, 1982). The challenge remains for educational publishers to equip teachers with materials that embody the principles of direct instruction. Similarly, teacher-educators need to sensitize teachers to the power of direct instruction and provide them the skills necessary to directly instruct children in reading comprehension skills.

References

Baumann, J. F. Effect of ideational prominence on children's reading comprehension of expository prose. Journal of Reading Behavior, 1981, 13(1), 49-56.

Baumann, J. F. Research on children's main idea comprehension: A problem of ecological validity. Reading Psychology, 1982, 3(2), 167-177.

Baumann, J. F. Children's ability to comprehend main ideas in content textbooks. Reading World, 1983, 22, 322-331. (a)

Baumann, J. F. A generic comprehension instructional strategy. Reading World, 1983, 22, 284-294. (b)

Berliner, D. C. Academic learning time and reading achievement. In J. T. Guthrie (Ed.), Comprehension and Teaching: Research Reviews. Newark, Del.: International Reading Association, 1981.

Berliner, D. C., & Rosenshine, B. V. The acquisition of knowledge in the classroom. In R. C. Anderson, R. J. Spiro, and W. E. Montague (Eds.), Schooling and the acquisition of knowledge. Hillsdale, N. J.: Lawrence Erlbaum Associates, 1977.

Brown, A. L., & Day, J. D. Macrorules for summarizing texts: The development of expertise. (Technical Report No. 270). Champaign, Ill.: University of Illinois, Center for the Study of Reading, 1983.

Clymer, T., & Venezky, R. L. Ginn Reading Program. Lexington, Mass.: Ginn and Company, 1982.

Doctrow, M., Wittrock, M. C., & Marks, C. Generative processes in reading comprehension. Journal of Educational Psychology, 1978, 70, 109-118.

Duchastel, P. Learning objectives and the organization of prose. Journal of Educational Psychology, 1979, 71, 100-106.

Duffy, G. G. Teacher effectiveness research: Implications for the reading profession. In M. L. Kamil (Ed.), Directions in Reading: Research and Instruction, Thirtieth Yearbook of the National Reading Conference. Washington, D. C.: National Reading Conference, 1981.

Duffy, G. G. Fighting off the alligators: What research in real classrooms has to say about reading instruction. Journal of Reading Behavior, 1982, 14(4), 357-373.

Duffy, G. G., & Roehler, L. F. Direct instruction of comprehension: What does it really mean? Reading Horizons, 1982, 23(1), 35-40.

Dunn, B. R., Matthews, S. R., & Bieger, G. Individual differences in the recall of lower-level textual information. (Technical Report No. 150). Champaign, Ill.: Center for the Study of Reading, University of Illinois, 1979. (ERIC Document Reproduction Service No. ED 181 448).

Fisher, C. W., Berliner, D. C., Filby, N. N., Marliave, R. S., Cahen, L. S., & Dishaw, M. M. Teaching behaviors, academic learning time, and student achievement: An overview. In C. Denham & A. Liberman (Eds.), Time to Learn. Washington, D. C.: National Institute of Education, 1980.

Good, T., & Brophy, J. Looking in classrooms. New York: Harper and Row, 1978.

Hansen, J. The effects of inference training and practice on young children's reading comprehension. Reading Research Quarterly, 1981, 16, 391-417.

Hansen, J., & Pearson, P. D. An instructional study: Improving the inferential comprehension of fourth grade good and poor readers. Journal of Educational Psychology, in press.

Johnson, R. E. Recall of prose as a function of structural importance of the linguistic units. Journal of Verbal Learning and Verbal Behavior, 1970, 9, 12-20.

Kintsch, W., & Keenan, J. M. Reading rate and retention as a function of the number of propositions in the base structure of sentences. Cognitive Psychology, 1973, 5, 257-274.

Kintsch, W., Kozminsky, E., Streby, W. J., McKoon, G., & Keenan, J. M. Comprehension and recall of text as a function of content variables. Journal of Verbal Learning and Verbal Behavior, 1975, 14, 196-214.

Meyer, B. J. F. The organization of prose and its effects on memory. Amsterdam: North-Holland, 1975.

Meyer, B. J. F., & McConkie, G. W. What is recalled after hearing a passage? Journal of Educational Psychology, 1973, 65, 109-117.

Otto, W., Barrett, T. C., & Koenke, K. Assessment of children's statements of the main idea in reading. In J. A. Figurel (Ed.), Reading and realism. Newark, Del.: International Reading Association, 1968.

Patching, W., Kameenui, E., Carnine, D., Gersten, R., & Colvin, G. Direct instruction in critical reading skills. Reading Research Quarterly, 1983, 18, 406-418.

Pearson, P. D. A context for instructional research on reading comprehension. (Technical Report No. 230). Champaign, Ill.: University of Illinois, Center for the Study of Reading, 1982.

Pearson, P. D. Direct explicit teaching of comprehension. In G. G. Duffy, L. R. Roehler & J. Mason (Eds.), Comprehension instruction: Perspectives and suggestions. New York: Longman, 1984.

Pearson, P. D., & Gallagher, M. C. The instruction of reading comprehension. Contemporary Educational Psychology, 1983, 8,

Raphael, T., & Pearson, P. D. The effect of metacognitive training on children's question-answering behavior. (Technical Report No. 238). Champaign, Ill.: University of Illinois, Center for the Study of Reading, 1982.

Rosenshine, B. V., & Berliner, D. C. Academic engaged time. British Journal of Teacher Education, 1978, 4, 3-16.

Taylor, B. M. Children's memory for expository text after reading. Reading Research Quarterly, 1980, 15, 399-411.

Taylor, B. M., & Berkowitz, S. Facilitating children's comprehension of content material. In M. L. Kamil and A. J. Moe (Eds.), Perspectives in reading research and instruction. Twenty-ninth yearbook of the National Reading Conference. Clemson, S. C.: National Reading Conference, 1980.

Tharp, R. G. The effective instruction of comprehension: Results and description of the Kamehameha Early Education Program. Reading Research Quarterly, 1982, 17, 503-527.

Tierney, R. J., & Bridge, C. A. The functions of inferences: An extended examination of discourse comprehension. In M. L. Kamil and A. J. Moe (Eds.), Reading research: Studies and applications. Twenty-eighth yearbook of the National Reading Conference. Clemson, S. C.: National Reading Conference, 1979.

Tierney, R., Bridge, C., & Cera, M. The discourse processing operations of children. Reading Research Quarterly, 1978-79, 14, 539-597.

Winograd, P. N. Strategic difficulties in summarizing texts. Reading Research Quarterly, in press.

Table 2

Mean Scores (and Standard Deviations) for Near Transfer Measures

	Strategy				Basal				Control			
	Low	Middle	High	Total	Low	Middle	High	Total	Low	Middle	High	Total
Explicit Paragraph Main Ideas[a]	7.00 (1.83)	8.13 (1.36)	8.86 (0.90)	8.80 (1.54)	4.71 (1.38)	6.25 (1.67)	7.57 (1.51)	6.18 (1.74)	4.71 (1.80)	4.63 (1.19)	6.57 (1.62)	5.27 (1.72)
Implicit Paragraph Main Ideas[a]	5.57 (1.13)	6.50 (1.07)	7.71 (2.06)	6.59 (1.65)	3.43 (1.72)	5.25 (1.75)	6.43 (1.72)	5.05 (2.06)	3.14 (1.68)	4.50 (2.20)	5.14 (1.95)	4.27 (2.05)
Details that Support Main Ideas[b]	23.57 (3.87)	26.88 (3.00)	28.57 (1.27)	26.37 (3.47)	19.43 (4.67)	23.25 (2.61)	25.43 (1.40)	22.73 (3.83)	19.14 (3.24)	21.75 (3.15)	24.43 (1.27)	21.77 (3.38)
Explicit Passage Main Ideas[c]	2.57 (0.79)	3.00 (0.00)	3.00 (0.00)	2.86 (0.47)	1.57 (0.98)	2.50 (0.54)	2.14 (0.38)	2.09 (0.75)	1.57 (0.98)	1.75 (0.71)	2.29 (0.76)	1.86 (0.83)
Implicit Passage Main Ideas[c]	2.43 (0.54)	2.63 (0.74)	2.57 (0.79)	2.55 (0.67)	1.86 (0.90)	1.63 (0.52)	2.57 (0.79)	2.00 (0.82)	1.14 (0.90)	1.63 (1.06)	2.14 (0.38)	1.64 (0.90)

[a]Maximum possible score = 10.

[b]Maximum possible score = 30.

[c]Maximum possible score = 3.

Table 4

Mean Scores (and Standard Deviations) for Far Transfer Measures

	Strategy				Basal				Control			
	Low	Middle	High	Total	Low	Middle	High	Total	Low	Middle	High	Total
Outline Paragraph Main Ideas[a]	4.14 (0.48)	4.31 (1.75)	4.86 (0.95)	4.43 (1.20)	2.07 (1.92)	3.31 (1.39)	3.43 (2.07)	2.96 (1.82)	1.79 (1.35)	1.63 (1.62)	4.29 (1.35)	2.52 (1.86)
Outline Passage Main Ideas[b]	1.21 (0.49)	1.44 (0.73)	1.79 (0.39)	1.48 (0.59)	0.71 (0.39)	1.19 (0.65)	1.14 (0.63)	1.02 (0.59)	0.64 (0.48)	0.75 (0.46)	1.29 (0.76)	0.89 (0.62)
Free Recall Main Ideas[c]	1.43 (0.89)	2.06 (0.12)	2.07 (0.93)	1.86 (0.10)	0.79 (0.57)	1.19 (1.00)	2.14 (0.99)	1.36 (0.10)	0.71 (0.64)	0.69 (0.65)	2.57 (0.12)	1.30 (0.12)
Free Recall Total Ideas[d]	3.79 (3.49)	6.94 (2.98)	6.79 (3.45)	5.89 (3.47)	2.36 (2.50)	3.63 (2.15)	7.43 (2.57)	4.43 (3.15)	3.79 (1.50)	3.75 (1.56)	6.64 (2.81)	4.68 (2.36)

[a]Maximum possible score = 6.

[b]Maximum possible score = 2.

[c]Maximum possible score = 4.

[d]Maximum possible score = 30.

Table 3

Univariate F Tests and Post Hoc Procedures for

Treatment Factor on Near Transfer Measures

Variable	Univariate F test			Post hoc[a]	
	F	df	p	Contrast[b]	p
Explicit Paragraph Main Ideas	20.599	2, 57	.001	S > B S > C B > C	.01 .01 .05
Implicit Paragraph Main Ideas	10.170	2, 57	.001	S > B S > C	.01 .01
Details that Support Main Ideas	15.227	2, 57	.001	S > B S > C	.01 .01
Explicit Passage Main Ideas	13.823	2, 57	.001	S > B S > C	.01 .01
Implicit Passage Main Ideas	7.875	2, 57	.001	S > B S > C	.01 .01

Table 5

Univariate F Tests and Post Hoc Procedures for

Treatment Factor on Far Transfer Measures

Variable	Univariate F test			Post hoc[a]	
	F	df	p	Contrast[b]	p
Outline Paragraph Main Ideas	6.448	2, 57	.003	S > B S > C	.01 .01
Outline Passage Main Ideas	9.682	2, 57	.001	S > B S > C	.01 .01
Free Recall Main Ideas	2.462	2, 57	.094		
Free Recall Total Ideas	1.926	2, 57	.155		

[a]Newman-Keuls Sequential Range tests were used as post hoc procedures.

[b]S = Strategy, B = Basal, C = Control.

Table 1

Strategy for Direct Instruction in Main Ideas

Step	Description
1. Introduction	Students are provided a description of the skill that will be taught and a rationale for the importance of that skill. This provides students a structured overview of the content and purpose of the lesson that follows.
2. Example	An example of the skill to be taught is provided. This extends the Introduction and further clarifies what the ensuing lesson will be about.
3. Direct Instruction	A formal lesson, directed by the teacher, follows. Students are provided portions of text containing the main idea skill to be taught and are then led through the process of determining what the main idea is. Students are involved in instruction as much as possible (underlining, circling, etc. at the board), and heuristics are used whenever appropriate (e.g., using an umbrella or table/legs to demonstrate main ideas and details).
4. Teacher-Directed Application	In this step, students are required to apply the main idea skill under the supervision of the teacher. Using natural texts, students must identify the main idea unit previously taught, and then the teacher monitors their success. Reteaching follows if students have difficulty with the application exercises.
5. Independent Practice	In this step, the children must complete independently exercises finding main ideas, thus completing the transition from full teacher responsibility (Direct Instruction) to partial teacher/pupil responsibility (Teacher-Directed Application) to full student responsibility (Independent Practice). Natural passages are used in this step as much as possible.